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INTELLIGENCE EVALUATION OF JAPANESE PROPOSALS
FOR DELETIONS FROM INTERNATIONAL CHINA EMBARGO LIST

Economic Defense Division
Office of Research and Reports
Central Intelligence Agency

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S-E-C-R-E-T

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Introduction

On 5 October 1955, the Japanese Government submitted to the US Embassy in Tokyo a list of items which the former desired to delete from the International China Embargo List.

Pursuant to a request from the Executive Committee of the Economic Defence Advisory Committee, the Japanese list has been examined in the light of present intelligence information in order to determine the relative strategic and economic importance of each item proposed for decontrol.

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S-E-C-R-E-TSUMMARY AND CONCLUSIONSThe Japanese Proposal

The list of 112 items proposed by Japan for deletion from control appears to be a careful selection of goods for which Communist China would present a ready market and which Japanese industry, for the most part, could promptly and profitably supply. Some caution seems to have prevented the inclusion of certain obviously strategic commodities in the list. But if carefully examined against current intelligence indications and estimates, most of the goods on the Japanese list, if made freely available to China, would directly facilitate the meeting of presently planned goals. Many of the proposed items are not only needed by China, but are in short supply also in the rest of the Bloc. It is not within the purview of this study to determine whether controls should be revised downward in the absence of prior assurance that China's public policy is no longer aggressive.

The items proposed by Japan are not produced in small or medium establishments, which in the Japanese submission were said to be "desperately competing with each other in the narrow and depressed domestic market and suffering from subemployment" and which were to benefit directly by control reductions. They are produced in large or costly smaller plants. Control reductions are also eagerly sought by other COCOM PCs and the benefit which any particular PC might envisage as resulting from the freeing of a certain item for trade with China might have to be shared with other PCs and non-PC free world producers on a highly competitive basis. For many of the proposed items, China has already let contracts in the free world and delivery only awaits revision of the controls.

In some of the proposed items, ^{1/} problems of know-how protection and patent licensing are also involved. For example, the production of some decontrolled equipment for sale to Communist China may require assent, say from a US licensor. At the present time, the majority of US firms licensing use of their patents abroad still deny themselves deliveries to Bloc destinations. Depending on the extent to which items are decontrolled, it may become necessary to determine whether US firms should let their foreign licensees trade with the use of their patents in a manner denied to themselves or whether US licensees abroad should be induced to reflect current US public policy at any cost. Decontrol of certain items of complex design also accentuate the problem of accurate identification of items for customs and enforcement purposes, particularly in cases where other types of that same commodity remain under control. It may be necessary for sellers of highly complex apparatus to exchange type or serial designations in the other PCs to permit proper recognition of items that could then be legally supplied to China.

^{1/} For example, Item C-509: Radar and radio navigation equipment, including direction finders, R.C.S.

Communist China's Position by Commodity Groups

China's current supply is inadequate in the following categories, in which the Soviet Bloc cannot assist China materially except by reallocation of critical resources, owing to internal shortages: Metal-forming machinery and advanced industrial equipment of all kinds, chemical equipment, ships, electric power generating equipment, electronic and precision instruments, metals such as copper and aluminum, certain minerals, a large group of chemicals and rubber and rubber products.

The rest of the Soviet Bloc could supplement China's inadequate supply in the following categories with fewer difficulties or without major reallocation of resources: Metal-cutting machinery, fairly simple petroleum equipment, 2/ general industrial equipment of simpler specifications, locomotives, rolling stock, and automotive vehicles.

Chinese capability at present is best developed for production of the following: Metal-cutting tools, rails, steam locomotives, ordinary freight cars, simple construction and mining machinery, selected consumer's goods (e.g. sewing machines, hand tools, bicycles), iron ore, steel (ordinary, but not alloyed steel), tin, wolfram, and coal.

Communist China's Five Year Plan

The broad objective of Communist China's first Five Year Plan is the creation of basic industry which will permit further expansion from China's own resources. This plan, however, can be used only as a general expression of future goals. In July 1955, the first comprehensive announcement was made concerning the plan which spans the period 1952 - 1957. Since, there have since been further announcements of plan changes in the product mix and further scaling down of originally projected goals.

The projected trend for annual increase in the GNP of Communist China for the period 1954 - 1957 is about 7.5 percent per year. The GNP itself is difficult to calculate: for 1952 in terms of US dollars at 1952 prices, it is about \$65 billion; in terms of the official rate of exchange, it is about \$33 billion (67 billion Chinese yuan). The rate of GNP growth projected for 1954 - 1957 is lower than the rate achieved during the period 1950 - 1953, owing to the very low level of the economy in 1950. But the presently applicable growth does not seem beyond Chinese capability, judging from past performance: In 1955, the GNP was about 19 percent above 1952. To accomplish this growth and investment, "austerity" (Chinese style) is being imposed on the population. 4/ Food consumption is being limited, consumer goods industries are de-emphasized and some of the goods, such as textiles, are being sold abroad to acquire foreign exchange.

2/ Simple drilling and "straight run" refining equipment but not "cracking" units for polymerisation processes or lubricating oil refining units.

4/ The 1955 average daily caloric intake is estimated to be 1,781 as compared with 1,967 in the prewar period. China has currently the lowest per capita caloric intake Asiatic countries except North Vietnam and India.

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Aside from "political reeducation" and propaganda projects, the major effort in the current Five Year Plan is directed toward the development of heavy industry. The plan calls for an expenditure equivalent to \$33.3 billion and an overall plan investment in capital construction equivalent to \$18.1 billion (At official rate of exchange for 1953.) 5/ The relative amounts assigned to various sectors are as follows:

Industry	58 percent
Transport, telecommunication	19 percent
Agriculture, forestry, conservation	8 percent
All others	15 percent

Within the industrial portion of the plan about 89 percent (\$9.3 billion) is to be invested in heavy producer's goods industries and 11 percent in consumers goods industries. The largest share of this expenditure is to go to the engineering industries (which require machine tools, bearings, motors, engines, and industrial equipment of all kinds), followed by iron and steel, electric power and coal.

The Role of the USSR and European Satellites in the Fulfillment of China's Economic Plans

The officially announced foreign trade of Communist China for 1954 (the only year for which such an announcement has been made) was 8.4 billion yuan or about \$3.4 billion. It is estimated that total imports amounted to \$1.98 million and exports to \$1.49 million. This estimate does not conflict with Chinese statements that trade is fundamentally in balance if military deliveries under the secret loan from USSR and capital transfers are regarded as credit items. A secret Soviet military loan of about \$400-500 million was reported in 1954. In addition, there have been large industrialization loans although the total amount is not known. In October 1954, the USSR announced the extension of one of these loans in the amount of \$130 million.

Communist China at present conducts about 75 percent of its foreign trade with the Soviet Union. The USSR has agreed to provide help for the principal 159 projects of the 694 projects scheduled for reconstruction or renovation during the current Chinese Five Year Plan. The European satellites are contributing a small share but their help is nonetheless substantial. For example, Rumania is currently producing electric generators for Communist China.

The Soviet contribution in terms of materials actually supplied to China has not been accurately estimated. Early reports suggested that the USSR would furnish from 50 to 70 percent of the materials required

5/ 76.64 and 42.74 billions yuan respectively, converted at 2.367 per \$1.

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for the 159 key projects but later indications are that actual deliveries may be somewhat less. On an overall basis, Chinese leaders have stated that China will have to import over 40 percent of the equipment and machinery required to fulfill the goals of the current Five Year Plan. But, as previously indicated, in such items as electric power generating equipment, telecommunications, marine engines, military and other specialized equipment China will depend to a far greater extent on imports.

China's current annual requirements of industrial equipment amount to about 1/2 percent of the Soviet GNP or 1-1/2 percent of Soviet production, a very sizable amount. Moreover, the burden is more significant for an economy whose resources are already heavily committed to internal expansion.

Recent reports describe specific difficulties encountered by the USSR in supplying China: Soviet officials have attempted to procure goods from Germany for export to China to relieve the pressure on Russian resources. In 1955, Chinese buyers seeking to obtain equipment for a chemical factory were unable to secure from delivery commitments in the USSR, European satellite producers were able to supply the equipment but pleaded inability to erect the actual plant without western technical help. Finally, it has been reported that the USSR and the European satellites have developed secretly a list of items, the export of which to China is limited or prohibited, in order to conserve the available supply for their own use. On this list are chemicals, pharmaceuticals, rubber and rubber goods.

Evaluation of the "Strategic Importance" of Items Proposed for Decontrol

In order to determine Communist China's vulnerability to denial of items included in the Japanese list and to estimate the consequences of decontrol, the individual items of the Japanese proposal have been examined and rated in the light of intelligence chiefly on the following points:

- a. Strategic importance, i.e. direct usefulness in military operations or for build-up of military potential;
- b. Significance in Communist China's current and long-range industrialization plans;
- c. Current and future availability in China (production and trade); and,
- d. Capacity of the Soviet Bloc to supply China.

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Tables 1 - 3 represent a summary of the more detailed commodity intelligence review in the latter part of this paper. The following provisional numerical ratings have been used in judging each item on the Japanese list as to its relative present "strategic importance" in terms of free-world security:

- Rating 3 - Strategically most important and/or would remove major obstacles in Chinese plan fulfillment
- Rating 2 - Strategically important item; strong Chinese demand, but Kloc's own resources could fill large parts of requirement
- Rating 1 - Strategically least important among items included in Japanese proposal

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TABLE I

NUMERICAL DISTRIBUTION OF CHINA LIST, II/III, AND II/IV ITEMS

PROPOSED BY JAPAN FOR DECONTROL

PROVISIONALLY RATED AS TO "STRATEGIC IMPORTANCE"

Group No.	Group Description	Number of Items in Respective "Strategic Importance" Ratings		
		3 (Most Important)	2 (Important)	1 (Least Important)
	Metal-Working Machinery	13		
	Chemical and Petroleum Equipment	11		
	Electrical and Power-Generating Equip.	61		
	General Industrial Equipment	6		
	Transportation Equipment	25		
	Electronics and Precision Instruments	15		
	Metals, Minerals, and their Manufactures	4		
	Chemicals and Petroleum Products	18		
	Rubber and Rubber Products	1		
	Miscellaneous		1	
	Grand Total	70	29	13

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TABLE 2

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, II/III, and II/II ITEMS

PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

Item Nos.

Commodity 6/

Rating 3: Most Important

Group 0: Metal Working Machinery

C-001	Metal working machinery, machine tools and accessories n.e.s. (a) metal cutting, (b) metal forming
3010	External cylindrical grinders
3011	Internal cylindrical grinders
3017	Single spindle grinders, n.e.s. with table 12" or more
3067	Metal cutting and working tools
3068	Carbide and carbide tipped tools or dies
3072	Presses (mechanical or hydraulic) with pressure of 1,000 tons or less
2003	Horizontal combination boring, drilling and milling machines

6/ Commodity definitions have been abbreviated for convenience

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TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, IL/III, and IL/II ITEMS

PROPOSED BY JAPAN FOR DECONTROL BY ITES UNDER RESPECTIVE RATINGS

Item Nos.

Commodity

Group 1: Chemical and Petroleum Equipment

- C-107 Driers for chemical processes
- C-113 Chemical process vessels, tanks, vats, piping - lined with corrosion - resistant material
- C-121 Evaporators, multiple-effect
- C-131 Pumps (except vacuum), (a) corrosion resistant, (b) high-temperature, (c) working pressure 75 p.s.i. (d) parts
- C-132 Vacuum pumps (and parts) mechanical n.e.s.
- C-140 Storage or transportation containers (special characteristics)
- 3120 Processing equipment operating at pressures over 450 p.s.i.
- 3132 Vacuum pumps, n.e.s. and parts

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TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, IL/III, and IL/II ITEMS

PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

Item Nos.

Commodity 6/

Group 2: Electric and Power Generating Equipment

- C-255 Diesel engines 25 h.p. and over, n.e.s.
- C-256 Internal combustion engines, n.e.s.
- C-260 Electric motors n.e.s.
- C-266 Power equipment n.e.s., (a) equipment for electric generating, transforming, rectifying and converting, substation equipment, (b) plant for production, (c) Boiler-house plant for above
- 3256 Diesel engines, n.e.s. (a) 300 to 800 h.p. @ 400 rpm or over.
(b) 800 h.p. or over @ 200 rpm or over
(c) 1500 h.p. or over @ 200 rpm up to but not including 400 rpm
- 3265 Electric motors n.e.s. of 500 h.p. but not including 5,000 h.p. and automatic controls
- 2265 Electric motors of 5,000 h.p. but not including 12,500 h.p. and automatic controls
- 2266 Electric generators, turbo-generators, turbines designed for turbo generators, and motor generator sets of 5,000 k.w. and over, n.e.s. and parts

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S E C R E T

TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, II/III, and II/II ITEMS
PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

<u>Item Nos.</u>	<u>Commodity</u>
------------------	------------------

Group 3: General Industrial Equipment

C-330	Calendars (rubber-working) with 3 or more rolls and capable of handling fabric 55" or over
C-375	Abrasives (Silicon carbide, wheels, corundum, emery etc.) (a) to (g)
C-380	Compressors and blowers, n.e.s. (a) (b)
C-384	Conveyor belting

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TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, II/III, and II/II ITEMS
PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

<u>Item Nos.</u>	<u>Commodity</u>
------------------	------------------

Group 4: Transportation Equipment

- | | |
|------|---|
| 3416 | Fishing vessels (a) steel bonito 50 - 130 feet,
(b) cutters, motor driven, 50 - 87 feet |
| 2416 | Fishing vessels and hulls with length over 50 feet
(note: those with hulls of wood can be rated "1") |

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TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, IL/III, and IL/II ITEMS
PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

Item Nos.

Commodity

Group 5: Electronic and Precision Instruments

C-501 Telecommunications equipment

C-504 Subminiature electronic circuit components

C-509 Radar and radio navigation equipment

C-561 Bridges

C-566 Measuring and Testing equipment

C-567 Metallurgical microscopes

C-568 pH meters

C-571 Precision, scientific, and optical instruments

C-572 Pyrometers

C-574 Spectographs, spectrometers, monochrometer

C-577 Voltmeters, ammeters, microammeters

C-581 Densitometers

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TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, II/III, and II/II ITEMS
PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

Item No.

Commodity

Group 6: Metals and Minerals

- C-617 Single and multicore electric power cable insulated, with or without armour
- C-620 Platinum products (provisional-part c - thermocouples rated "1")
- C-265 Tin plate
- C-630 aluminum or aluminum alloys (as defined)
- C-664 Sulfur bearing pyrites
- 3601 Antifriction bearings (a) low carbon unground steel balls, (b) carbon steel balls and rollers
- 2601 Antifriction bearings and parts (intermediate sizes, all types as defined)

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TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, II/III, and II/II ITEMS
PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

Item No.

Commodity

Group 7: Chemical and Petroleum Products

C-703. Ships bottom composition

C-706 Rubber compounding agents

C-710 Acetic acid and acetic anhydride

C-711 Acetone

C-717 Calcium carbide

C-718 Carbon black, n.e.s.

C-721 Chlorates and preparations thereof

C-725 NN - Dimethylaniline

C-728 Formaldehyde

C-735 Methylmethacrylates n.e.s. as defined

C-737 Nitric acid, ammonium nitrate, potassium nitrate

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TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, II/III, and II/II ITEMS

PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

Item No.

Commodity

Group 7: Chemical and Petroleum Products (Continued)

C-742 Permanganates: calcium and potassium

C-744 Phosporus all kinds (note: Red phosporus may be rated "1")

C-753 Sulfuric acid: 93 percent H_2SO_4 and stronger, including oleum

C-756 Tricresylphosphate

C-758 Vinyls and resins n.e.s.

3720 Fluorinated hydrocarbons (as defined)

3761 Sulphur

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TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, II/III, and II/II ITEMS
PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

<u>Item No.</u>	<u>Commodity</u>
-----------------	------------------

Group 8: Rubber and Rubber Products

C-820 Tires and tubes n.e.s. (as defined)

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TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, II/III, and II/II ITEMS
PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

Item Nos.

Commodity

Rating 2: Important

Group 0: Metal Working Machinery

3008 Multi-station tools

3055 Horizontal, draw cut, shapers

3034 Axle lathes (borderline case for rating 3)

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TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, IL/III, and IL/II ITEMS
PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

Item Nos.

Commodity

Group 1: Chemical and Petroleum Equipment

C-117 Water treatment equipment (industrial)

Group 2: Electric Power Generating Equipment

C-210 Welding machines and equipment, n.e.s. and parts
(see item 3202)

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TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST. II/III. and II/II ITEMS
PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

Item Nos.

Commodity

Group 3: General Industrial Equipment

- C-303 Crucibles, artificial and natural graphite
- C-331 Masterbatch mixers with automatically controlled time cycle,
chamber volume 130,000 cu.cm. or more
- C-351 Mining equipment and machinery, n.e.s.
- C-383 Crushing equipment
(a) Crushers, grinders, and pulverizers
(all types except for food processing)
(b) Colloid mills
- C-385 Core drills
- C-390 Graphite
(a) artificial and amorphous
(b) powder

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TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, II/III, and II/II ITEMS
PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

Item Nos.

Commodity

Group 4: Transportation Equipment

- C-450 Motor vehicles, parts and equipment -- trucks, trailers and motorcycles, n.e.s. (except scooters, tricycles under 1/2 ton and private touring cars) (Note: certain vehicles such as firefighting and buses can be rated "1")
- C-470 Locomotives and parts, n.e.s (general service, switching, industrial, mine)
- C-471 Railway rolling stock, n.e.s. and parts
- C-472 Railway rails, n.e.s.
- 3477 Railway rails of 70 lbs. or more per linear yd.

TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, IL/III, and IL/II ITEMS
PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

<u>Item Nos.</u>	<u>Commodity</u>
------------------	------------------

Group 5: Electronic and Precision Instruments

C-502 Detection apparatus

C-575 Surveying instruments

C-584 Micro-hardness testers

C-586 Strain gauge equipment

2568 Electronic automatic controlling units (provisional because
of present narrow definition - potentially a '3' rating)

TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, II/III, and II/II ITEMS
PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

Item Nos.

Commodity

Group 6: Metals and Minerals

- C-601 Antifriction bearings and parts (as defined)
(a) balls (low quality) (b) unground
- C-635 Iron and steel products, n.e.s. as defined (part "b" - alloy
steel rated "3")
- C-650 Lead in semi-fabricated and other such forms, n.e.s.
- C-662 Sodium (metallic) (provisional rating)

Group 7: Chemical and Petroleum Products

- C-733 Methanol
- C-752 Sodium cyanide
- C-771 Petroleum asphalt (provisional)

TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, II/III, and II/II ITEMS
PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

Item Nos.

Commodity

Group 9: Miscellaneous

C-901 Abaca and sisal, fibres and cordage

TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, II/III, and II/II ITEMS
PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

<u>Item No.</u>	<u>Commodity</u>
-----------------	------------------

Rating 1: Least Important

Group 3: General Industrial Equipment

- | | |
|-------|---|
| C-320 | Materials-handling equipment, (a) Fork-lift trucks, (b) platform trucks, (c) other trucks, stackers, trailers |
| C-321 | Civil engineering and building equipment (a) to (j) |
| C-376 | Air-conditioning units (self-contained, capacity over 8,000 BTU per hour) |
| C-381 | Portable hand-held tools, (a) metal working, (b) mining and quarrying, (c) transportation and servicing |
| C-395 | Precipitators (electrostatic) |

TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, II/III, and II/II ITEMS
PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

Item No.

Commodity

Group 4: Transportation Equipment

C-401 Watercraft, n.e.s. and important components

TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, IL/III, and IL/II ITEMS
PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

Item No.

Commodity

Group 5: Electronic and Precision Instruments

C-576 Telescopes

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TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, D/III, and II/II ITEMS

PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

Item No.

Commodity

Group 6: Metals and Minerals

C-669 Zinc (all forms except manufactures)

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TABLE 2
(Continued)

"STRATEGIC IMPORTANCE" RATINGS FOR CHINA LIST, II/III, and II/II ITEMS
PROPOSED BY JAPAN FOR DECONTROL BY ITEMS UNDER RESPECTIVE RATINGS

Item No.

Commodity

Group 7: Chemical and Petroleum Products

C-720	Cellulose nitrate containing not more than 12.3 percent nitrogen
C-722	Chromium compounds as defined
C-730	Glycerine
C-731	Hydroquinone
C-738	Paraffin wax petroleum jelly

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TABLE 3

PERCENTAGE DISTRIBUTION OF RATINGS AS TO
"STRATEGIC IMPORTANCE" OF CHINA LIST, II/III, AND II/II ITEMS,
PROPOSED BY JAPAN FOR DECONTROL

<u>Rating</u>	<u>No. of Items</u>	<u>Percentage</u>
3 (Most Important)	70	63
2 (Important)	29	25
1 (Least Important)	13	12
Total	<u>112</u>	<u>100%</u>

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Commodity Intelligence Review

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GROUP O

METAL WORKING MACHINERY

Japan has proposed 1 China List, 9 II-III and 1 II-II items for decontrol.

These items cover metal-forming machinery (presses), metal-cutting machines of medium size, and tools (bits, drills, etc.). This machinery is needed by Communist China to develop production of other machine tools as well as to develop production of critical components of such end items as freight cars and locomotives, tractors, motor vehicles, and general industrial equipment.

Some of the items proposed for decontrol were formerly rated II-I and were downgraded during the list review of 1954. One item, the larger sizes of combination horizontal boring, drilling, and milling machines (Item 2003), is now disagreed in COCOM and the U.S. is currently seeking to have a part of it upgraded to II-I.

At the present time, most of the machinery suggested for decontrol by the Japanese is either not being produced in China or is produced in small quantities and in very limited sizes. In the production of some items, however, such as tungsten carbide tipped tools, China appears to be making progress, although the indigenous supply is believed to be inadequate.

China's current production of machine tools is still relatively small although recent increases have been large. Total Chinese production was estimated at about 15,000 units for 1955 as compared with only about 6,000 units in 1951. 1/ Most of the machine tool types now in production are fairly simple. Current development plans have been altered recently: for the next two years they no longer seem to stress rapid/quantitative increase in production but improvement of quality, modernization and greater diversification of types. Thus, the previously announced annual production goal of 30,000 machine tools for 1960 probably is of doubtful validity. By 1957, on the other hand, the assortment of machines then in production is now planned to encompass 142 types of tools of modern design; currently only about 70 types are being built, many of them of obsolete design.

Several new factories will have to be built to achieve the planned expansion. The principal construction projects call for erection of at least four machine tool plants and reconstruction of existing facilities. The Soviet Union is to assist China on this project but the exact extent of Soviet participation has not been disclosed.

1/ It is recognized that a count of numbers without reference to value is inadequate statistical procedure, but it is the only guide available at the present time.

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Recent reports indicate that good progress is being made at some of the Chinese machine tool plants, and at one accessories plant in the production of items which formerly were in extremely short supply. For example, precision grinders were being produced to the following specifications:

Surface grinders	300-1000 mm
Internal grinders	80- 160 mm
External grinders	600-1000 mm

At one tool plant, the following items were reported in production:

- 18 percent tungsten drills
- Reamers (taper and parallel)
- Taps and dies (all threads)
- Side and end milling cutters with inserted teeth
- Slitting saws, plain and segmented with renewable teeth
(maximum 720 mm)
- Carbide tipped tools and gear cutting hobs

The above mentioned plants reportedly had both old and new equipment. The old equipment was of European and U.S. makes. The new equipment was Czechoslovakian, East German, and Russian. Significant shortcomings still persist in the machine tool industry, however. Minister Li Fu-Shun stated on 6 July 1955 that at the important Mukden Lathe Plant No. 2, all of the drilling lathes produced in the first quarter of 1955, numbering 380, were returned "due to wrong procedures in manufacturing; the item of wasted parts alone cost 1.2 million yuan". As a result, the plant made no progress in volume production from September 1954 to the first quarter of 1955.

From a supply and strategic point of view the following items proposed for decontrol by China probably would be the most important: presses, carbide and tungsten tools, gear cutting machines, broaching machines, and finally horizontal combination boring drilling and milling machines (in the larger sizes only i.e., above 4" spindle). The remaining items proposed for decontrol (or their substitutes) such as various grinders and lathes, probably could be obtained by China from the rest of the Soviet bloc. Their strategic significance to China, at its present stage of development would be high (e.g. Item 3034 for the production of railroad axles with a high degree of efficiency).

The machine tool production of the rest of the Soviet bloc is very large, exceeding that of the U.S., in terms of numbers and value. Certain

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types of tools, however, are in short supply - particularly metal-forming machines such as presses and precision casting machinery. Some types of grinders are also in short supply. In the general subgroup of metal-cutting machinery, however, the Bloc is in a fairly strong position to fill China's needs with a minimum of inconvenience although not in all types. Some metal cutting machines are being exported by the European satellites to the free world.

Data on over-all imports of machine tools into Communist China are not available. In the case of imports of machine tools from the European satellites only, it is estimated that their value in 1954 was roughly \$24 million or about 10 percent of total imports from this source. (Trade with the satellites amounts to about 20 percent of China's total foreign trade of China).

During the first half of 1955, the Chinese attempted to obtain from the free world various types of milling machines, a medium-sized press, and die casting equipment. 1/ It is noteworthy that the latter two items are in the category of metal forming machinery (as opposed to the metal cutting machinery), which is also in short supply even in the USSR, the largest machine tool producer in the Bloc.

The success of China's Five Year Plan to a considerable extent will depend on the availability of machine tools which, in the long run, will depend on the completion of a number of key plants on schedule. It is also believed that the quality of China's machine building will be largely dependent on the availability of technical and material aid extended to it by the rest of the Soviet Bloc. Even when present plans have been completed, China will continue to depend on imports of many kinds of metal working machinery for many years to come.

1/ A recent report states that China has placed an order for 2,000 grinders in a western country (non-COCCOM member). These machines were of the smaller type which would be useful in a garage or a maintenance shop. The value of the order is not known, but if it is assumed that each machine would be worth \$500 which is a minimal figure, the total order would amount to \$1 million, making it one of the largest placed recently.

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GROUP I

CHEMICAL AND PETROLEUM EQUIPMENT

A. The Japanese Proposal

The Japanese propose 7 China List and 2 IL-III items for decontrol. No petroleum equipment items have been nominated for decontrol, but some of the items included in the Japanese proposal (e.g., pumps and vessels) could be used by the petroleum industry.

B. Chemical Equipment

These items cover equipment of mid-range complexity but often incorporate corrosion-resistant qualities. Included are driers, evaporators, pumps, storage equipment, etc., which together with certain electronic items similarly proposed for decontrol would greatly assist China in building up production facilities to meet some of the deficiencies in explosives, chemicals, rubber products, and pharmaceuticals.

The current shortage of chemicals is one of the main vulnerabilities of China's economy. Unconfirmed reports indicate that other Bloc countries have restricted exports of chemicals and pharmaceuticals to China to conserve such products for use elsewhere. The current plans call for almost a doubling of the output of basic chemicals and pharmaceuticals.

China currently produces practically no chemical equipment. Reports indicate that some chemical producers have had to resort to crude and primitive improvisations to maintain production.

Current plans for increasing the output of chemicals call for the construction and renovation of five chemical production plants with Russian assistance. Two of these plants are scheduled for completion in the period 1958-60. A carbide factory and a soda factory are to be constructed later, and an existing oil-paint factory is to be renovated. While no specific information is available on the extent of the Russian assistance, a high Chinese official has stated that only a part of the equipment needed for these plant projects will actually come from the USSR.

The current Chinese Five Year Plan also calls for the building of a chemical industrial machinery and repair plant and an oil-refining machinery plant. When these two plants are completed, probably only in 1960, the country will be able to start production of some of its own chemical equipment of the simpler type. However, the plans are not given in detail and it is apparent that China is faced with the creation of an entirely new industry. In this task it also will be almost entirely dependent on imports of technical know-how as well as equipment.

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In addition the country will have to learn to produce (or will have to import) the proper types of corrosion-resistant raw stock (steel, ceramics, glass, etc.) and precision-controlling equipment used in the production of chemical producing equipment.

The USSR and the European satellites, owing to internal shortages, cannot easily supply China with the required quantities of chemical equipment incorporating corrosion-resistant materials and advanced know-how. These materials are in short supply in the entire Bloc.

The USSR has already encountered difficulties in fulfilling specific delivery commitments for chemical equipment to China. It has been reported that a Chinese delegation to the USSR was referred to a satellite country as a source of equipment for a chemical factory. The satellite country also was unable to furnish the desired machinery without western technical assistance.

There have been persistent efforts by the Chinese to obtain chemical and pharmaceutical production equipment from the free world. A conspicuous example is China's recent effort to procure through clandestine channels a water treatment plant of a type that the Japanese have now proposed for decontrol.

C. Petroleum Equipment

The very severe shortage of petroleum products in China will be a source of indirect pressure for procurement of dual use chemical-petroleum equipment proposed for decontrol by the Japanese.

The country currently produces only a part of the crude oil and refined products that it needs. The delivery of petroleum products to China by other members of the Bloc is a costly and difficult operation (running of the blockade by sea or costly railroad transport with empty tank cars returning for distances of thousands of miles). China is scheduled to expand production of refined products during the current Five Year Plan especially when full production begins in the Yumen oil fields. Currently China is virtually unable to produce the geological, drilling, prospecting or oil refining equipment or accessories that are required for this development.

The required types of petroleum equipment have been made in the USSR, Rumania and Czechoslovakia for many years. Although the Bloc position is not one of abundance (the more complex types of equipment and corrosion resistant materials also are in short supply), it is believed that the Bloc could meet China's relatively modest needs with less difficulty than the chemical equipment items.

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For the type of equipment that Japan has proposed for decontrol, a ready market should exist in China for many years to come. The acquisition of the equipment from the free world would relieve one of the main bottle-necks in China's development plans for chemical and petroleum production.

The foregoing should be read in context with the comments supplied for Group 7, below.

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GROUP 2

ELECTRICAL AND POWER-GENERATING EQUIPMENT

A. The Japanese Proposal

The Japanese propose 5 China List, 2 II/III, and 2 II/II items for decontrol. This decontrol proposal covers equipment rated up to 60,000 kw and under, i.e. virtually all electric power generating items except those on II/I. 1/ These items include electric power equipment for which Communist China has now the greatest need, e.g., equipment for generating, transforming, rectifying and converting electric current, its transmission and distribution; control gear and accessories; substation equipment; parts for all of the foregoing; and boiler house plant equipment and prime movers for use with the aforementioned installations.

B. Electric Power Generating Capacity in China

Currently China is severely short of electric power. The development of electric power and of an industry to produce electric power equipment are among the principal goals of China's present plan and the cornerstone of the future industrial development of the country. 2/

China's small electric power generating capacity, consisting of electric power generating machinery supplied by many different countries (Germany, Japan, UK, US), suffered heavy damage during World War II. It was partly dismantled by invading Soviet armies which took some installations as booty. Some of the latter equipment was subsequently returned, but in poor condition. Finally, during the ensuing civil war between the Nationalists and the Communists still further damage was inflicted on the power capacity. Some of the stations were rebuilt after 1948 but the equipment remains obsolete and in poor condition.

Communist China's present (1955) installed electric power generating capacity is approximately 3,000,000 kw and is concentrated in a few industrial centers in the East and in southeastern Manchuria. This is approximately equal to the electric power generating capacity of North Carolina. Most of the stations are small, a few exceeding 15,000 kw in capacity.

The much revised first Five Year Plan now calls for an addition to installed electric power generating capacity of 1,060,000 kw, an increase of approximately 33 percent, to bring total installed capacity up to about 4,060,000 kw by the end of 1957.

Specifically, the current Five Year Plan calls for the completion of

1/ On II/I are electric generators of 60,000 kw and over.

2/ Lenin said that "Communism is socialism plus electricity"; China appears to be following closely the experience of the USSR's industrialization pattern of the late twenties which emphasized first and foremost the creation of electric power for industry.

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54 new electric power stations, of which nine are to be designed by Russian engineers. The majority of the stations will be thermal stations. According to Chinese announcements, work will also begin on another 38 stations, apparently of larger size, which are not scheduled for completion until later.

Since China's plans call for development of industry scattered throughout the country's interior, where there is little or no electric power at present, the current plan emphasizes small and middle sized thermal stations (5,000-15,000 kws) with equipment of the type that Japan has proposed for development. The full harnessing of China's vast hydroelectric power potential and the control of rivers "China's sorrow" awaits further industrial development of the country. However, six hydroelectric power plants are being constructed or renovated at present which will require equipment of about 50,000 kw.

C. Electric Power Generating Equipment Industry

China is just beginning to build up an industry for the production of electric power equipment. In 1955, China produced generators with a total estimated capacity of 140,000 kw, steam turbines with a total estimated capacity of 14,500 kw, and water turbines with a total estimated capacity of 29,300 kw. By 1957, China may be able to produce annually electric generators with a total capacity of 227,000 kw, steam turbines with a total capacity of 84,500 and water turbines totalling 79,500 kw in capacity. Still further expansion of production is planned for 1960. Generator output, for example, is planned to reach 324,000 kw in total capacity by that year.

To reach these production goals, the following new factories are scheduled to be built in the 1955-1961 period: 2 boiler factories, 2 steam turbine factories, 2 electric generator factories, 1 electrical equipment factory, 1 electric wire and cable factory, 1 carbon brush factory, 1 electrical equipment renovation factory, 1 low-voltage switch factory, and 1 transformer factory. Thus, a whole new industry is to be created. China cannot build up this industry without large imports and technical aid. Even if the 1960 goals are met, China's capacity to produce electric power equipment will be modest in terms of the power needs of the economy.

In all likelihood, the growing demands from the planned increases in industry in general will easily absorb the increase in electric power output, even if the planned increases for the latter are realized. For example, if China succeeds in producing by 1960 aluminum at the rate of 30,000 tons per year, as planned, this industry alone would require an installation of about 175,000 kw. ✓

Even if it is assumed that domestic production of equipment will rise according to plan, the data suggest that China will nevertheless have to import generators with a total capacity of 508,000 kw and turbines with a total capacity of 925,000 kw in order to achieve their current Five Year Plan goal for installed capacity.

Chinese efforts to procure electric power generating equipment in quantity from other Bloc countries have met only with small success. Rumania and other European satellites have produced some equipment for China. But the USSR and the European satellites themselves have continued attempts to procure

1/ Calculated at the rate of 10 kwh per 1 lb of aluminum and an operating factor of 3,800 hours per year.

some of this equipment from the free world.^{2/} To some extent, this may reflect the pressure on the supply of such input materials as copper, steels, and bearings within the Soviet Bloc.

China has made persistent and vigorous attempts to contract with free-world suppliers for complete power units and spare parts. For example, contracts were concluded with Brown-Boveri (Switzerland) in 1954 for one 25,000 kw power plant and five other plants reportedly with a capacity of 10,000 kw each. Other contracts with free-world suppliers have been signed or are in an advanced stage of negotiation, with actual deliveries contingent only on the deletions proposed in the Japanese list.

The continuing series of requests to COCOM/CHINCOM (by UK, Belgium, France, Japan, and West Germany) for permission to ship replacement parts for electric power generating equipment to China reflects China's continued dependence in this category on free-world suppliers. Owing to the multi-national origin of installed equipment, free-world parts are especially needed to reclaim, rehabilitate, or maintain aging plants installed in the course of the industrialization following World War I.

A relaxation in COCOM/CHINCOM controls on this equipment might not only remove a major bottleneck for Chinese procurement of equipment and parts, but might cause China to revise her power and consequent industrialization goals upward. In any event, the demand for free-world equipment and parts is strong and voluminous and is expected to continue for at least two decades.

D. Diesel Engines

Included in the list of items proposed by Japan for decontrol in this category are two items covering diesel engines.^{2/} If these items are decontrolled, all diesel engines except those on II-I would be available for export to Communist China. The engines on II-I (Item 1255) are those of (a) 1,500 with a rotary speed of over 600 rpm, i.e. high speed, rather light-weight large

^{2/} This overall conclusion seems justified notwithstanding the fact that the Soviet Bloc has exported some power equipment to the free world, for example, to some underdeveloped areas as part of barter arrangements and for propaganda purposes.

^{3/} The Japanese proposal covers the following two items:

Item C-255, Diesel engines 25 hp and over.

Item, 3256 Diesel engines, n.e.s., as follows:

- (a) 300 to 800 hp with rotary speeds of 600 rpm or over;
- (b) 800 hp or over, with rotary speeds of 400 rpm or over;
- (c) 1,500 hp or over, with rotary speeds of 200 rpm up to but not including 400 rpm.

The Consolidated China Special List, as published by the US Department of Commerce on 13 July 1955, does not show an entry for an item C-255. The Japanese proposal apparently accepts the existence of such a listing pursuant to CHINCOM Document 373 and sub-docs. 1, 3, and 5. See also State Incoming Tel, Tokyo 1370, 15 December 1955, Secret.

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engines of high strategic importance, in industry and for naval craft, and, (b) 50 hp and over whose magnetic content exceeds 50 percent of their total weight, i.e. the special alloy ultra light-weight diesel engines for use in special purpose naval craft (mine sweepers).

Thus the Japanese proposal, if implemented, would end controls on all but the very highly specialized types of engines and permit export to China of all kinds of engines needed for industrial and military uses.

China's current production and production capacity of diesel engines is small. Diesel engines have been made in at least three plants in Dairen, Tsingtao and Shanghai; there are several other plants where diesel engines could be made on a custom basis. It has been reported that the largest engine built domestically to date has a rating of about 250 hp, but it is not known whether it is in commercial production. Smaller engines have been made for various applications in agriculture and industry, but it is doubtful that serial production has been achieved.

The present Five Year Plan gives little information on China's program for diesel engine production beyond the statement that experimental production of a diesel engine of 675 hp is to start during the current plan. This type of an engine would be adequate for powering small ocean-going vessels and small electric power stations. There is no specific information on the capital expansion required to increase the production of these diesel engines in China.

China will continue to need a wide variety of engines for industry and agriculture. However, the lighter weights of engines, mostly under 100 hp, are used in the Bloc to power heavy trucks and tractors, and China's plans call for production of 15,000 tractors in 1960. At present, no such vehicles are being produced in China. It is very likely that plans for future production of heavy trucks and tractors in China include the construction of shops making diesel engines for this purpose. Small diesel engines also will be needed to power such industrial machinery as pneumatic drills, mining machinery, pumps, irrigation pumps, compressors and portable electric generators. Plans for expansion of the electric power generating equipment industry also may include provisions for making diesel engines. But to achieve a large output of diesel engines, China will have to make substantial imports of fairly large foundry and machine shop equipment.

It is believed, therefore, that for a number of years to come China's indigenous production will be small, even when present plans for industrial expansion are implemented. Internal demand probably will continue to exceed domestic production for a considerable time.

The rest of the Soviet Bloc has been producing diesel engines for many years and has the technical know-how approximately equal to that of the free world save in the most advanced experimental types. Some difficulties have been reported in the production of crankshafts and high-speed fuel injectors, but in the conventional types Bloc know-how is adequate. On the other hand, the supply of diesel engines, especially marine diesels, has not been adequate in the Bloc and engines and parts have been sought by the European satellites from the western countries. Machinery to make special parts also has been

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sought. It is believed that the rest of the Soviet Bloc can furnish some types of engines to China, but only in limited amounts.

As regards free-world suppliers, China has actively sought diesel engines and parts since the imposition of controls. Contracts for delivery of presently controlled types of marine diesel engines have been signed sometime ago and delivery awaits relaxation of export controls.

It is believed that a very large market for all types of diesel engines will continue to exist in China for a number of years.

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GROUP 3

GENERAL INDUSTRIAL EQUIPMENT

A. The Japanese Proposal

The Japanese have proposed that 15 China List items in the general industrial equipment category be decontrolled. There are no proposals for decontrolling II-II or II-III in this group.

Although the items proposed for decontrol are dissimilar and cover equipment for a number of industries, most of these may be grouped approximately as follows:

metallurgical industry - crucibles, graphite, abrasives
construction industry - platform trucks, lift trucks, concrete mixers, paving equipment, hand tools, etc.
mining equipment industry - general mining equipment, crushers
rubber processing industry - callendars, masterbatch mixers.

In general, the production in Communist China of the items proposed for decontrol either has not begun or is at a low level as regards quantity and quality. China requires substantial imports of this equipment in order to implement the construction, mining, and rubber production sectors of the current Five Year Plan.

Most of this equipment proposed for decontrol is relatively simple and has been manufactured in other parts of the Bloc for many years. Some of it has been offered by Bloc producers for export to the free world. The equipment probably could be provided to Communist China by the rest of the Bloc with relatively minor inconvenience. By the same token, China should also be a good market for obsolete or secondhand machinery. But there are also a few items in this category such as three-roll-type callendars and masterbatch mixers (which require considerable precision in manufacture) and abrasives (which are not in abundant supply in the Soviet Bloc), where the Bloc would have difficulties in supplying China from its own resources.

On several of the items proposed for decontrol in this category, some additional comments can be supplied.

B. Metallurgical Industry

Graphite crucibles and graphite to make crucibles are used in the making of fine grade tool steel. Graphite is also used to make electric motor

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brushes, as a lubricant in paint and in pencils. It is treated here as one of the inputs for the metallurgical industry because of the strategic significance in this application. China's current supply of graphite appears to be inadequate.

The supply of a natural graphite in the rest of the Bloc area is inadequate, but the artificial graphite which is produced in the USSR and in some of the satellites actually is superior to the natural while the supply in the Soviet Bloc of this material is not abundant, China's limited demands could possibly be met without imposing an undue burden.

The supply of abrasives to Communist China is inadequate and numerous procurement attempts have been made through intermediate channels. The supply of high-grade abrasives and grading wheels in the rest of the Soviet bloc is not abundant and it would be difficult for the bloc to supply China without considerable replanning.

C. Construction and Conveying Industry

The current Soviet bloc production of conveyor beltting is not adequate to permit substantial allocations for export to China.

The production of even the simplest type of construction equipment in China is negligible and the park of existing equipment is also very small. The equipment proposed for decontrol is required for the large reservoir projects currently under construction, for building strategic roads and railways, and for the erection of numerous new plants firmly scheduled for completion in the period 1955-1960.

There are no specific data on Communist Chinese plans to produce this type of equipment. It could be produced, for example, in plants manufacturing railway rolling stock. China has the plant capacity and know-how to produce simpler types of this equipment but could do so only at the expense of tying up facilities now assigned to the production of other items.

All of the equipment in this subgroup is available in the rest of the Soviet Bloc, but the bloc supply situation is not one of abundance.

Communist China has made recent efforts to obtain construction machinery from free world suppliers and fulfillment of negotiated contracts for such machinery awaits only the lifting of the COCOM/CHINCOM restrictions.

D. Mining Equipment Industry

Current Chinese production of mining machinery is inadequate as regards both quality and quantity. Considerable progress has been made by China in restoring a number of small (and heavily cannibalized) plants and some production of mining machinery has been resumed, but the country is still

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faced with the creation of virtually a new industry. Only the simplest types of tools are made, e.g. hammers, drills and small crushers. Even these items are copies of obsolete US and Soviet equipment but at the present stage of its development, the Chinese mining industry probably could not utilize more complex types of equipment. There have been numerous reports of waste and difficulties in the production of machinery and excessive breakage and other shortcomings in the use of it. The current supply of machinery is insufficient to permit the country to carry out the very ambitious expansion of the production of coal, iron ore, non-ferrous metal ores, cement and other raw materials projected for the current Five Year Plan.

Several plants producing mining machinery are scheduled for renovation during the current Five Year Plan. Furthermore a new mining machinery plant, designed by the USSR, is to be completed in China in 1960 when production is scheduled to begin at that plant. This will be the first indigenous source of supply for more complex types of mining machinery.

Mining machinery of all types has been manufactured in other parts of the Soviet Bloc for many years. While the Bloc supply has not always been adequate, particularly with regard to crushers, it is believed that machinery of the simpler types could be furnished China in limited quantities. Some mining machinery has recently been advertised by Bloc countries as available for export, but the exact volume of actual deliveries in the free world is not known.

China has sought to obtain mining machinery from the free world for several years. Actual contracts have been concluded for the delivery of such machinery as soon as present CUCOM/CHINCOM restrictions are relaxed.

E. Rubber Processing Industry

The supply of rubber products in Communist China is inadequate to meet current demands for tires, tubes and rubber footwear. The plans for development call for approximately doubling the present output by 1960.

Rubber manufacturing machinery is not currently produced in China and the country depends on imports of such equipment. Thus, the priority assigned for such imports is very high. On the other hand, China is under pressure to improve the supply of rubber manufactures by expanding indigenous production. The rest of the Bloc is short of rubber products (and of rubber) and exports of rubber products to China have allegedly been restricted.

Of the two machines proposed for decontrol (mixers and callenders), masterbatch mixers are the simpler type. Callenders are more complex, requiring precise tolerances under heavy strain. It is questionable if the Soviet Bloc can supply China with larger numbers of this equipment without seriously retarding scheduled production elsewhere. The demand for this equipment from free world sources therefore is likely to be strong if controls are removed.

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GROUP 4

TRANSPORTATION EQUIPMENT^{1/}

The internal transport requirements of Communist China are met, at the present time, chiefly by railroads. These were estimated to have accounted for 72% of the total cargo tonnage originated in Communist China in 1955 (Table 5), and 86% of the total ton-kilometer performance (Table 6) in Communist China's transportation system. Highway transport, in 1955, was estimated to have accounted for about 17% of the total cargo tonnage originated in Communist China. In terms of ton-kilometers, however, highway transport reflected the predominance of urban traffic and absence of long hauls, chiefly due to the inadequate road-network and limited automotive park. The more traditional modes of transport in China, inland waterway and coastal shipping, were estimated to have accounted in 1955 for a lower performance than highway traffic in terms of total tonnage carried, but for a higher performance in terms of ton-kilometers.

The foreign trade of Communist China is now carried proportionately half by sea and half overland, largely over the Trans-Siberian railway. To date, China has not been in a position to make a significant contribution to the fulfillment of her requirement for near-seas and ocean-going shipping. Bottlenecks in port through-puts and at overland transloading points are rapidly being remedied apace with the progressive development of China's internal transportation system. The construction of two major wide-gauge rail lines linking China with the Russian railway system will make a major contribution to expediting the international overland traffic.

A. The Japanese Proposal

The Japanese propose five China list, 2 II-III and 1 II-II items for decontrol.

The railroad items proposed for decontrol represent items now in actual production in Communist China as well as other parts of the Bloc. To a limited extent, these items cover equipment for the production of which the free world has a comparative advantage of technological know-how, quality control, and assembly-line output. Deletion of these items would free all railroad equipment from international restrictions.

The shipping items proposed for decontrol would free small size watercraft and seagoing fishing vessels of limited strategic usefulness. For China, however, the removal of restrictions on the latter might be a distinct boon in view of the fact that domestic ship construction facilities for other types than junks are still limited (also as regards the provision of input materials) and that even "non-strategic" fishing craft have been assured and used for naval patrol and transport duties.

^{1/} This discussion is limited to surface and water transport.

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The single automotive item, proposed for deletion from the China list would permit China to import virtually all non-military types of passenger vehicles, trucks, and parts therefor. At the present stage of development, however, there would be many military and strategic applications in which even non-specialized equipment could be employed.

B. Railroads

1. Trackage

By the end of 1955, approximately 16,000 miles of railroad lines were operable in Communist China as compared to less than 14,000 miles estimated to have been in service in 1949. The railroad network was originally largely concentrated in the industrial northeastern sections and provided only very limited service to the important southern coastal areas. Similarly there was inadequate access to China's interior and western provinces, hampering the exploitation of major raw material resources.

In order to remove the transportation bottleneck to continued economic expansion and political consolidation, the current Five Year Plan allocated about 70% of the funds earmarked for transportation to the improvement and expansion of the railroads. During the current plan, 6,250 miles of track are to be laid of which 2,500 miles represent new lines.

The following are the principal new projects under development:

Sinkiang Railroad:

Work on this line has been in progress for sometime; it is to be extended another 175 miles in 1956 to the Kansu-Sinkiang border. The Yumen oil-fields, China's main domestic petroleum source, are to be reached early in 1956. This line will connect with the Soviet Turk-Sib line from Alma Ata.

Packi-Chengtu Railroad:

Work on this line has been in progress for some time; currently is reported that the 12,000 foot high passes of the Chinling mountains are being traversed and the goal is about 100 miles away. This line will link the agricultural Szechwan province with the eastern coast.

Yintan-Amoy Railroad:

Work on this line of some 390 miles length appears to be ahead of schedule according to Peiping statements. Amoy (opposite Formosa) may be reached by the end of 1957.

Kunming-Neichiang and Szechwan-Kweichow Railroads:

These lines in the southwest part of the country, are projected only and work on them is to begin in 1956. The survey for these lines is reported to have been completed. Laying of track for new railroad lines in Communist

China appears to have progressed more rapidly in the past 2 years than was anticipated in the formulation of the original Five Year Plan goals.

Annual production of railway rails of all types and sizes in Communist China is currently estimated at approximately 180,000 tons, i.e., the equivalent of 1600 miles of trackage using 70 lbs/yd rails. At the current output rate of domestic rolling mill capacity, Communist China is not meeting the requirements particularly for heavy rails specified in recently stepped-up construction plans. For the next several years, Communist China is likely to show strong interest in imports of rails of all types, and, in the event of decontrol, Communist China probably would rely to a considerable extent on free-world supplies. The USSR can easily absorb its current output of rails in Russian projects, and satellite manufacturers such as East Germany are still reported encountering quality-control and quantity production problems. The rails proposed by Japan for decontrol (Item 3477 - 70 lbs or over/linear yard, 35 kg/meter) include precisely the types of heavier rails used for construction of strategic railroads in the Bloc including Communist China.

2. Locomotive Park and Rolling Stock

In 1955, the Communist Chinese locomotive park was estimated to consist of some 3000 units (chiefly steam engines) and the Chinese rolling stock was estimated to number approximately 68,000 units in the same year. The remarkable increases that are reported to have occurred in the ton-kilometer performance of Communist Chinese railroads, particularly following the end of the Korean War, were due not only to increased utilization of existing equipment, but also to improved maintenance permitting such utilization and the greatly increased production of new equipment.

Further increases in the production of new equipment, as scheduled through 1960 in Five Year Plan announcements, are shown in Table 4. In order to reach these goals, one plant for locomotive construction and one railroad car repair shop are to be built before 1960, and six existing locomotive repair shops and two existing railroad car repair shops are to be renovated. The inputs required for these plant construction and renovation projects, and the increased demands which the new plants will make on supplies once they are in operation, highlight also the importance of materials covered under various other categories in this analysis.

Even with the planned augmentation of construction and repair facilities, Communist China probably will continue to import locomotives, particularly those of advanced design, in order to meet their ambitious equipment and traffic goals. While the European Soviet Bloc potentially could supply much of the additional locomotive equipment required by Communist China, there is little evidence that it has in fact done so.

Decontrol of Item C-470 would make it possible for Communist China to acquire from free-world suppliers both general service (line) and industrial locomotives (and parts therefore) of all principal types and sizes now required. In view of the country of origin of existing Communist Chinese equipment, Japan might anticipate orders for such general service locomotives as, e.g., the MIKADO type, if the Communist Chinese decide to promote uniformity

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of equipment in order to preserve widest possible interchangeability of parts. On the other hand, it would also be important to determine whether any general service locomotives sought by Communist China in the event of decontrol, are ordered in wide gauge for possible use on the new Sinkiang and Outer Mongolia trunk lines. Such wide-gauge equipment would in effect augment not only Communist Chinese transport capabilities, but would directly contribute to their further integration with those of the USSR in the Far East.

C. Water Transport

1. Ocean-going and Coastal Vessels

At the end of 1955, Communist China's merchant fleet consisted of some 120 ships of 1,000 GRT or over totaling approximately 295,000 GRT, as compared with 1950 when Communist China had 79 oceangoing vessels totaling 175,000 GRT. The increase in the merchant fleet was accomplished by salvage enterprises, acquisition of new and used ships from abroad, and some domestic construction. Participating countries have not furnished ships to Communist China since the imposition of COCOM controls, but other free-world countries, notably Finland, have sold new and used ships to Communist China. Finnish ship sales to Communist China thus far include 1 second hand vessel of 1959 GRT and 3 new cargo vessels totaling approximately 6,981 GRT. At the present time firm Sino-Finnish trade agreement commitments call for the construction of 3 additional ships of 2,730 GRT each for Communist China by 1956. In 1957, Sino-Finnish trade agreement commitments call for the delivery of 2 tankers of 3000 GRT each to Communist China. In addition to these vessels acquired or to be acquired from Finland, Communist China was also able to retain control over some 25 vessels totaling approximately 55,000 GRT which had engaged in Communist China trade under the Panamanian flag.

It should be noted that at present the Chinese merchant fleet is employed in some near-seas traffic but chiefly in the coastal traffic. There is still a dearth of good harbors along the China coast. Of the hundred or more ports and landings along the coast only a handful are of major importance to foreign and domestic traffic. Rather ambitious plans have been announced, however, for the enlargement of this branch of transport.

Communist China's ocean-borne transport requirements have been met chiefly by other Bloc and non-Bloc flag tonnage. Bloc tonnage involved in trade with Communist China increased from a total of approximately 835,000 GRT in 1952 to a total of 1,163,000 GRT in 1954. The restoration of numerous free-world liner services to China following the end of the Korean War, in addition to chartered free-world shipping involved in trade with Communist China increased total free-world shipping engaged in Communist China trade from 2,692,000 GRT in 1952 to 5,461,000 GRT in 1954. It is possible that for strategic and prestige reasons China may resort to more far-flung overseas shipping operations, if free-world bunker and ship repair controls are relaxed. In that event some ships acquired by European satellites for the China trade (in some instances with Chinese aid) might be transferred to the Chinese flag. But otherwise even the free-world liner and tramp tonnage now engaged in trade with China could go far toward meeting additional ocean transport requirements

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of a liberalized Chinese foreign trade pattern for the immediate future.

Japan, however, has not proposed decontrol of items covering ocean-going merchant ships. On the other hand, increased availability of such items as ship plate, boiler tube, and diesel engines, which have been proposed for decontrol, will provide considerable aid to Chinese shipbuilding and ship repair programs.

Communist China has some 10,000 ocean going junks with a total cargo carrying capacity of approximately 402,000 tons. Some of these junks, sampans and fishing vessels have been armed for patrol and coastal escort duty; others are used as naval auxiliary units, e.g. as radar pickets. Chinese Communist junks operate largely along the southern coastal areas and generally represent substantial military transport reserve capacity.

Fishing vessels have been a popular trade agreement item in free world trade negotiations with the Soviet Bloc in view of their high value per ton.

Japan specializes in the construction of certain types of fishing vessels covered by items 3416 and 2416, proposed for decontrol. While Communist China does have shipbuilding capacity for the same type of ships, it is now devoted almost entirely to naval construction. Decontrol therefore would permit continuation of Communist Chinese naval construction programs unhampered.

2. Inland Waterway Transport

China has about 60,000 miles of navigable inland waterways, but a large part of the system is suitable only for shallow draft vessels. As shown in Table 5. This mode of transport has exceeded the ton-kilometer performance of both coastal shipping and highway in the recent past and is expected to continue doing so in the future. In terms of cargo originated in Communist China, inland waterway traffic occupies a much more prominent position in Chinese shipping services than coastal traffic (see Table 6).

The China list shipping item proposed by Japan for decontrol covers also craft usable chiefly for inland waterway traffic. This should be judged in terms of overall military build up and China's announced intention to seize off-shore territories such as Formosa.

D. Automotive Vehicles

The Communist Chinese inventory of motor vehicles (passenger cars and trucks) grew from about 40,000 units in 1950 to 67,000 units in 1954. China's goal is an inventory of 250,000 vehicles at the end of 1960. The larger part of present motor transport in China is required for short-haul urban, and semi-urban transport.

The need for vehicles, particularly trucks, will increase as highways are improved. At present, highway transport of the long-haul type is almost entirely absent in areas served by river, coastal, and rail transport. Important commercial roads represent about 50,000 miles of the 86,000 miles of highways now open to traffic. Most of the 6,000 miles of new highways built since 1949 have linked remote regions with the existing road system of south-central China.

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During the current Five Year Plan, a total of 45,000 miles of new highways was to be added to the Chinese road network.

Current plan goals for the automotive vehicle parts for 1957, as well as for later years, cannot be met without substantial imports from abroad because China's present production capacity for motor vehicles is only a few thousand units; increases in production cannot take place until new plants are built; substantial production is not scheduled until 1960 (see Table 4). In view of the backlog of unfilled delivery commitments for motor vehicles of all types within the USSR and some of the satellites, only vehicles required for urgent military needs and key construction projects are being made available to China by the rest of the Bloc. Strong attempts to procure automotive equipment and parts in free-world countries are continuing. A larger consignment of British passenger automobiles to China in 1954 received considerable notice from the Communist press.

The proposed deletion of Item C-450 would permit free-world producers to supply to China the type of automotive equipment urgently required for fulfillment of urban and normal highway transport needs. It may also eventually release planned Chinese facilities for concentration on the production of military-type vehicles and, in time, relieve Chinese pressure on Russian production facilities for such versatile military-type vehicles as GAZ-69's and heavier all-wheel drive models now covered by Items 1450 and 2450.

TABLE 4

ESTIMATED RECENT AND PLANNED PRODUCTION
OF TRANSPORTATION FACILITIES IN COMMUNIST CHINA,
FOR SELECTED YEARS, 1952-1960
(in units)

	(est) 1952	(est) 1955	(plan) 1957	(plan) 1960
Locomotives	20	100	200	930 (capacity)
Freight Cars	800	8,500		9,000 (capacity)
Passenger RR Cars	6	150	300	1,500 (capacity)
Trucks		-	4,000 (?)	90,000 (capacity)
Ships (in units)	84	-	1,347	-
by GRT	21,000		179,000	

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TABLE 5

ESTIMATED RECENT AND PLANNED CARGO ORIGINATED IN COMMUNIST CHINA,
BY TYPES OF TRAFFIC, FOR SELECTED YEARS, 1952 - 1960

	(millions of tons)			
	(est) 1952	(est) 1955	(plan) 1957	(plan) 1960
Rail	156	208	245	300
Inland Waterways (excluding wooden craft)	15	25	35	48
Coast Shipping (excluding wooden craft)	5	6	8	9
Highway	30	51	68	86

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TABLE 6

ESTIMATED RECENT AND PLANNED CARGO MOVEMENT IN COMMUNIST CHINA,
BY TYPES OF TRAFFIC FOR SELECTED YEARS, 1953-1960
(billion of ton - kilometers)

	(est) 1953	(est) 1955	(plan) 1957	(plan) 1960
Rail	76	102	121	160
Inland Waterways	6	9	12	16
Coastal Shipping	4	5	6	7
Highway	1	2	3	5

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GROUP 5

ELECTRONICS AND PRECISION INSTRUMENTS

A. The Japanese Proposal

The Japanese have proposed that sixteen items on the China Special List and two items on International List III in the electronics and precision instruments category be deleted from control to Communist China. The proposed deletions would afford Communist China an opportunity to buy the radio and land line equipment needed for a swift buildup of an internal and external communications system and would make available a complete line of precision instruments which would enable Communist China to construct, service, and maintain a modern industrial plant. The items proposed for deletion can be grouped roughly under "Communications" and "Instruments".

B. Communications.

The Japanese propose decontrol of the following telephone and telegraph (landline) equipment: (i) carrier frequency telephone terminal equipment operating at 10 kc/s and under (3-7 channel equipment); (ii) intermediate repeater and amplifier equipment; (iii) parts and subassemblies; (iv) automatic magnetic and battery switchboard equipment; (v) inter-phone systems; (vi) toll and switchboard cable; (vii) bare wire line; and (viii) power supply line. This equipment would give Communist China a modern efficient telephone system.

The following telegraph equipment would be deleted: (i) all voice frequency telegraph terminal equipment; (ii) teleprinters; and (iii) teletype equipment (the latter operating at 200 words or less a minute), this equipment would give China a modern, efficient telegraph system.

All radio transmitters, subassemblies, and components, except the specialized military types listed under International List Item 1517, would be decontrolled. Acquisition of this equipment would give China radio broadcasting facilities equal to those in free-world countries.

In addition the Japanese have proposed that certain electronic bridges, voltmeters, ammeters and micrometers be decontrolled. This equipment is used to test and maintain communications equipment.

Communist China's needs for both wireline and radio communications systems is critical. At present, communications facilities are concentrated in the eastern part of the country. Industry and government consume about 80 percent of the existing communications service. China's stated telecommunications policy is (a) to push wireline construction as fast as possible to insure security of state and military messages, and (b) to give priority to the national defense, military, and political tasks of the state since communications facilities are not adequate to meet other needs.

For 1954, 37 major construction and expansion projects for long distance telegraph lines were planned. The telegraph system itself has been

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expanding at the rate of about 11,000 km a year. In 1955 it was announced that telephone lines would be extended by 12,000 km and that 33,000 switchboards would be added to the telephone system. These figures give an indication of the magnitude of expansion being undertaken in wireline communications.

Communist China plans to increase radio broadcast stations by 10 percent a year. It is not known how many radio transmitters China has at the present time.

Generally speaking, it is estimated that investment and operating expenditures for telecommunication will increase 20 percent by 1957 and will double by 1960.

Communist China produces little or no radio or land line communications equipment. At present one signal equipment plant is under construction which was designed and is being built by East German technicians. This plant, scheduled for completion in 1957, will manufacture radio, telephone and telegraph equipment and some precision instruments. Projected annual production rates for this plant are estimated to run as follows:

- 450,000 loudspeakers, from 1 to 25 watts and corresponding transformers
- 150,000 bedstones of sapphire and agate for measuring instruments
- 300,000 rotary condensers for radio
- 150,000 earphones of 4,000 ohms impedance
- 100,000 speakers for telephone operators
- 60,000 headsets for telephone operators
- 60,000 measuring instruments for switchboards and laboratories
- 42,000 microphones

Such production is almost negligible in terms of China's needs.

At present, China is importing almost all of her requirements in radio and land line communication equipment. Most of it comes from the European satellites and some of it from the free world. Although some sectors of the communications system probably will show a large growth by 1960, communications facilities in Communist China will still be only barely adequate unless purchases from free world producing countries are increased considerably in the meantime.

C. Precision Instruments

Communist China is in critical need of all types of precision instruments and control apparatus necessary to the build-up of a modern industry. The Japanese have proposed that precision, measuring, testing and optical instruments suitable for use in the engineering industry and for use in the development, production, and testing of military equipment be decontrolled. They have also proposed that pH meters, and spectographic equipment be decontrolled, along with densitometers, micro-hardness testers, and strain gauge equipment.

The Japanese have further proposed the deletion of International List Item 2568, which covers electronic automatic controlling units and associated regulating units. Electronic controlling and regulating equipment, the key to "automation", harnesses electronic brains to mechanical muscle to the point where even modern mass production techniques are becoming obsolete. Automated machines, such as those using devices covered in Item 2568, can adjust to variable productive conditions, correct their own mistakes, inspect the finished product, and even change their own parts as they break or wear out. Automation in the United States is applied in refining oil and in the production of armaments, weapons, planes, military electronic devices, engines of all types, chemicals and explosives, the generating of electric power, etc. As Communist China industrializes, it is reasonable to believe that the Chinese will want to equip their industry with as much precision, measuring, testing and automatic equipment as feasible.

At the present time Communist China, cannot build precision instruments or electronic automatic equipment. Neither the skilled labor nor the production experience is available and it takes decades to develop. The USSR and the European satellites are not in a position to furnish such equipment to the Chinese since by their own admission a critical shortage of these instruments exists in their own countries and since only a beginning has been made in the development of automatic equipment for use in their own industries. The Director of the Russian Automation and Remote Control Institute stated in May 1955:

"Technical equipment is the material base without which automation is not possible. Since the war, our industry has developed new types of automatic equipment and increased its production several times. However, current production does not meet the needs of industry either in terms of volume or in terms of variety of equipment, and this is one of the main factors impeding development of automation."

It is believed that if the devices covered by Item 2568 along with other precision instruments become available to Communist China, they will plan for substantial purchases of this equipment from the free world over the next 20 to 30 years.

GROUP 6

METALS, MINERALS AND THEIR MANUFACTURES

A. The Japanese Proposal

Japan has proposed ten China Special List items, one IL-III, and one IL-II item for decontrol. These items can be grouped as follows:

2 ferrous metals items -

- (i) tinplate,
- (ii) iron and steel products, including alloy steel, n.e.s.
(pig iron, GI sheets, plates, girders, pipes, tubes,
powder, etc).

All of these items are on the China Special List.

7 non-ferrous metals items -

- (i) electric power cable,
- (ii) platinum thermocouples,
- (iii) aluminum and aluminum alloys (n.e.s.)
- (iv) lead pipe,
- (v) zinc,
- (vi) sodium,
- (vii) sulphur-bearing pyrites.*

All of these items are on the China Special List.

3 anti-friction bearings items -

All types of bearings are covered by these three items, except those on IL-I.** One item each is on the China Special, IL-III and IL-II lists.

B. FERROUS METALS

The ferrous metal items proposed for decontrol by Japan include some products which Communist China produces in very limited quantities and others of which Chinese output is of inferior quality. A sufficient supply

* Since pyrites are probably processed for sulphur rather than iron content, remarks under sulphuric acid apply to this item (see Group 7)

** Generally speaking, IL-I covers the very small and the very large, special and ultra light weight bearings; all have very high military application. The bearings on IL-II are the "in-between size" and are also important from a strategic point of view but have "dual use".

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of iron and steel products is basic to any industrial expansion program as well as to mobilization plans. For example, such products are needed for ship repair, steam boilers, and construction of factories projected under the current Chinese Five-Year Plan. Tinplate is needed for the preservation of (military) supplies, chiefly foods which must be stock-piled or stored so as to resist rough handling.

China currently is expanding its production of iron and steel products in terms of both quantity and variety. This is one of the main objectives of the current plan. The country has a raw materials base that will more than support the planned expansion, but a substantial amount of assistance is being obtained from the USSR and East Germany in order to make possible the enlargement of the iron and steel processing industry.

An early plan to produce 10 million tons of steel in 1962, has been revised downward. The most recent realistic estimates of pre-Plan, current and likely future production is given in Table 7 :

TABLE 7

RECENT AND PROJECTED PRODUCTION OF FERROUS METALS
IN COMMUNIST CHINA.
FOR SELECTED YEARS 1952 - 1960
(millions of metric tons)

<u>Material</u>	<u>1952</u>	<u>1955</u>	<u>1957</u>	<u>1960</u>
Pig iron	1.9	3.3	4.1	5.7
Crude steel	1.4	2.6	3.8	5.8
Finished steel	1.1	1.9	3.0	4.2
Iron ore	4.0	10.5	15.0	21.4

The Chinese Government has identified the following large projects which are to be completed at intervals in the future, with Russian assistance:

a. Restoration and enlargement of An-shan Steel Works - proceeding rapidly, although behind schedule, will increase its capacity to three or four times its pre-Plan size, to a point where it will be producing over half of all Chinese steel mill products.

b. Wuhan and Pao-T'ou Steel Works - the Wuhan project, located in central China, is entirely new as is the Pao-T'ou project in Inner Mongolia. First phases of these projects are to be completed in 1961-1962. The "world's finest" open-hearth furnaces are envisaged for this development.

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c. In addition, four "first-rate" steel works will be constructed or reconstructed during the 5-year period.

d. Smaller enterprises, including the Chunking, Tientsin, T'ang-shan Steel Works, are to be renovated and expanded by 1957.

The recent emphasis on quantity appears to have prevented the necessary improvement in the quality of Chinese finished steel. Modernization of steel mills has made possible the manufacture of pig iron of reasonably good quality although it has been admitted that among the enterprises affiliated with the Heavy Industry Ministry during the first quarter of 1955 a large amount of pig iron fell below specifications due to high sulphur content. Thirty percent of the output of heavy steel and steel for building bridges of the T'ang-shan Iron and Steel Company did not meet the specifications. The planned expansion calls for a great deal of capital equipment which China probably cannot provide indigenously, for example: 6 automatic blast furnaces; 3 modern steel smelting plants; 16 steel rolling mills; and 4 new fire refractories plants.

At the present time China is not self-sufficient in iron and steel products and imports perhaps 500,000 tons of steel and steel products per year. In terms of value, imports of iron and steel products form 5.5 percent of total estimated imports into China in 1954. They come chiefly from other parts of the Soviet Bloc but also to a significant degree from the free world (by transshipment and through clandestine channels). Imports in 1954 included plates; various forms of sheet, such as GI and tin plate; rails, and other finished and semi-finished steel products. Exceptions requests in CHINCOM-COCOM for GI sheets have been substantial.

Although steel products are not plentiful in the rest of the Soviet Bloc, the USSR, because of its large steel production (about 55 million tons per year), is in a position to provide many items to China. This source, however, does not fully satisfy China's current import needs. It is believed that a large market for steel products will exist in China for many years to come.

Currently, Communist China furnishes tin to the USSR and probably obtains tinplate in return. There are also clandestine shipments of tinplate from the free world. If tinplate should be removed from embargo, it is possible that Japan would take the place of the USSR in receiving tin from China and shipping tinplate in return.

C. Non-Ferrous Metals

The situation with respect to non-ferrous metals in China is highly selective and may change with the passage of time as the geological exploration of the country is still in progress, indeed has a high priority in the current plan program.

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Currently the country has an exportable surplus of tin, zinc, antimony, mercury and of wolfram (tungsten ore), but is critically short of copper and aluminum. Even if the ambitious expansion plans for 1952-1957 would be fully implemented, copper and aluminum deficiencies would be expected to remain.

If the plans of expansion are realized (which will depend on a continued influx of capital equipment from abroad), Communist China by 1960 may be self-sufficient in pyrites, fluorspar and possibly lead. Other metals and minerals of which Chinese supply is limited or non-existent are frequently those for which the country also has small, if any, need, making the shortage of relatively little significance.

Estimates of recent and current Chinese production of selected non-ferrous metals (or their source minerals) and projections for the future are given in the table below:

TABLE 8

RECENT AND PROJECTED PRODUCTION OF SELECTED NON-FERROUS METALS
IN COMMUNIST CHINA,
FOR SELECTED YEARS, 1952 - 1960
(thousand of metric tons, metal equivalent)

<u>Item</u>	<u>1952</u>	<u>1955</u>	<u>1957</u>	<u>1960</u>
Tungsten (wolfram)	15.8	20.5	23.7	N.A.
Copper	8.0	12.9	13.6	14.6
Zinc	4.4	10.3	13.6	18.7
Lead	7.0	22.5	23.1	24.0
Tin	9.0	13.0	17.0	22.0

It will be seen from this table that increases are expected to vary from 60 to over 200 percent between 1952 and 1957.

The text of China's Five-Year Plan recognizes that the non-ferrous metals industry is the "weak-link" of China's heavy industry; the development of resources and production facilities of these metals is one of the important tasks of the current plan. An emphasis is being placed not only on modernization of the existing mines and opening up of new ones, but also on geological exploration. Probably the largest single project currently underway is the Ko-Chin Tin Mine (Yunan Province) which produces about 80 percent of China's tin. In the case of other metals, a shortage of smelting capacity seems to exist as well as a shortage of skilled labor. The quality of the metals produced, especially that of copper and aluminum, appears to be sub-standard, as may be expected in the initial stage of operation.

The rest of the Soviet Bloc is also critically short of copper, is currently attempting to import significant amounts of mercury, and is importing approximately as much aluminum and bauxite as it is exporting.

China has sought to obtain copper, aluminum and several other non-ferrous metals and their products from the Satellites, from the USSR and through clandestine sources from the free world. Premium prices have been paid for some of these items.

Commodities of high production cost in the Bloc, as compared with the US include most non-ferrous metals and minerals, coaxial cable (made of copper, steel, lead, etc.), magnetic materials (cobalt, etc.), aluminum, cobalt, columbium, copper, mercury, molybdenum, nickel, and bismuth. These high Bloc costs are believed to be explained by low-quality ores, inconvenient geographic locations, low-rate of capital equipment and relatively inefficient use of machinery.

The Japanese proposal, therefore, if implemented, would decontrol some of the critically needed non-ferrous metals in China. The decontrol of electric cable, for example, would tend to nullify the existing controls on copper, the embargo of which has been an objective of the US economic defense policy for several years. It would also make possible the acquisition of wire of a much better quality than China can produce.

From a strategic point of view, decontrol of electric cable would be undesirable also because it would permit a rapid improvement in China's weak communications system.

The decontrol of platinum thermocouples would put important laboratory and electronic components at China's disposal. Although there is no shortage of raw platinum in the Bloc (the USSR is one of the largest producers in the world) thermocouples are not in adequate supply in the Bloc, although the need of China, itself, for these items is probably negligible.

D. Anti-Friction Bearings

China's present output of bearings is inadequate from a qualitative and quantitative point of view. It is estimated very roughly that in 1955 production of bearings probably exceeded one million units. It is probably concentrated in the similar types and only a limited number of sizes

Under the current plans of development the three existing ball bearings factories will be renovated -- apparently no new construction is envisaged. There is little doubt that much of the new equipment, especially the key precision grinding machinery, will have to be obtained from abroad. Since some of the European satellites are still short of bearings and their own indigenous production is not fully developed, such machinery could be furnished to China only at the sacrifice of production elsewhere in the Bloc. China may also have difficulty in producing steel and semi-finished products of sufficient uniformity and quality to permit expanded production of bearings in the near future.

Currently bearings have been sought from the free world through legal and other sources. They have been a preferred item in clandestine trade. Bearings and parts of all types and sizes, but mainly of the middle (II-II) range, have figured in this trade. They can be used in trucks, heavy machine tools, and railroad rolling stock.

As communist China's industrialization advances, an even greater market will develop for bearings and parts of all types including unmounted balls.

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GROUP 7

CHEMICAL AND PETROLEUM PRODUCTS

A. Chemicals

Japan has proposed 24 China List and 2 II-III chemical items for decontrol. These chemicals in most cases have dual uses and prior to the list review of 1954, a number of them had been rated II-I. Most of the items proposed for decontrol by Japan have a number of military uses; they also have "peacetime" application in "peacetime" industry (metallurgy, rubber manufacture, plastics, dyes). The "sinister" uses of some of these chemicals are as follows:

- acetone (solvent for smokeless powder)
- acetylene (for military welding)
- carbon black (to make military tires and footwear)
- chlorates (to make explosives)
- N-Dimethylaniline (to make propellants for guided missiles and explosives)
- Formaldehyde (to make RDX - an explosive)
- methanol (to make anti-freeze, formaldehyde and high explosives)
- methyl methacrylate resins (to make "bubbles" for airplanes)
- nitric acid (to make basic explosives)
- permanganates (can be used as catalysts for rocket fuel)
- phosphorus (can be used in chemical warfare and plastics)
- sulfuric acid (to make basic explosives)
- sulfur and pyrites (base to make many chemicals and sulfuric acid and rubber goods)

At the present time China produces very little or none of the chemicals proposed for decontrol by Japan, except possibly glycerine, sulfur and methanol; nearly all of these chemicals are being imported from the rest of the Bloc or from the West.

China's present production of basic chemicals is inadequate to meet the military, industrial, and agricultural needs of the country. The

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development plan calls for approximately doubling the 1955 output by 1960 in several basic chemicals. In broad terms they may be grouped as follows:

- (a) rubber chemicals which are related to the planned increase of output of tires and rubber foot wear, the basic item of wear in China even for the military;
- (b) sulfuric and nitric acid, related to the planned increase in output of steel, metals and industry generally;
- (c) coal tar chemicals (naphtalene, benzol, toluol, phenol), which are intermediate products for dyes for the textile industry, plasticizers or explosives; and
- (d) ammonium sulfate, a basic fertilizer, probably intended for use in increased cotton production but which also has a wide application in industry.

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TABLE 9

RECENT AND PROJECTED PRODUCTION OF SELECTED CHEMICALS
IN COMMUNIST CHINA,
FOR SELECTED YEARS, 1952 - 1960

(1,000 metric tons)				
<u>Commodity</u>	<u>1952</u>	<u>1955</u>	<u>1957</u>	<u>1960</u>
Calcium Carbide	8.0	15.0	21.0	30.0
Synthetic Ammonia (as N)	28.8	62.0	82.2	112.5
Refined Naphtalene	3.400	5.300	6.500	8.200
Chlorine	6.9	N.A.	N.A.	N.A.
Refined Benzol	9.8	15.0	18.4	23.8
Toluol	2.4	3.8	4.6	5.8
Xylol	0.800	1.300	1.500	2.100
Phenol	0.200	0.300	0.400	0.500
Cresol	0.400	0.700	0.800	1.100
Caustic Soda	32.2	44.5	52.5	65.0
Sulfuric Acid	150.0	267.0	335.0	435.0
Soda Ash	192.0	365.1	476.0	690.0
Nitric Acid	9.4	20.6	28.2	40.0
Ammonium Sulfate	211.4	360.0	455.0	600.0

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Even if the plans can be met (which was described as questionable for reasons explained in the comment for Group I above), China's growing industry will have a large need for many different types of chemicals. Problems of quality control also will plague the country for many years to come.

At the present time, the rest of the Soviet Bloc is not in a strong position to export chemicals to China. In many basic chemicals, particularly in sulfuric acid, there is no exportable surplus in the Soviet Bloc. ^{1/}

Communist China has increased reliance on the free world for supply of chemicals. In China's trade with free world countries, the share of chemical imports has risen from 8 percent in 1950 to nearly 30 percent in 1954. Chemicals have been sought in many trade agreements with the free world. Dyes have figured as one of the preferred items in clandestine procurement efforts and some continue to command a premium price. Chemicals also figured prominently in CHINCOM exceptions.

There should be a ready market in China for many of the chemicals proposed for decontrol for at least the next decade.

B. Petroleum and Petroleum Products

The only petroleum products or derivatives which Japan has proposed for decontrol are paraffin wax and petroleum asphalt. Both are on the China Special List. Certain forms of petroleum wax are included in the International Atomic Energy List, and therefore must be continued under control for China as well as for other Bloc areas. There is no evidence of special Chinese interest in this item. When petroleum asphalt was proposed for deletion from II-III, its addition to the Special China List was important because Chinese production was believed to be negligible or nonexistent and procurement attempts from the free world were considered to be substantial. These attempts have been less evident recently, although small quantities of asphalt are believed to have reached Communist China by clandestine means.

There has been an increase in the contribution of the petroleum industry to the economic potential of Communist China during the past five years. The output of refined products, only 400,000 tons in 1951, reached about 715,000 tons in 1954. This supply, however, provided only one-third of the country's requirements; the remainder is imported, primarily from other Bloc countries.

The crude oil resources of China will support increases in production, but transportation difficulties - both great distances and lack of equipment - together with a shortage of refining facilities, impose restrictions on expansion of the industry. If the railroads currently under construction to China's interior are completed in 1957, as planned, the principal oil-producing region will be linked to the industrial centers of the East.

^{1/} An unconfirmed report indicates that export of chemicals to China is being restricted by the rest of the Soviet bloc.

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There is a possibility that petroleum refinery output (including synthetic oil operations) may reach 1,000,000 tons by 1960. Even then, however, China would remain dependent upon imports for a substantial part of her requirements of petroleum products.

The rest of the Soviet Bloc produces a sufficiently large amount of petroleum products to furnish China's restricted needs. However, here again the problem of transportation is one that presents very considerable difficulty. Petroleum products have been so scarce that they have been moved even by truck. Kerosene and gasoline are a preferred item in illicit trade with free world supplies at the two main Asian ports - Hong Kong and Macao. Moreover, Russian tank cars, which deliver oil to China, have to return empty on a run of several thousand miles. Thus POL is available only at very considerable economic cost to China as well as the rest of the Bloc.

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GROUP 8

RUBBER AND RUBBER PRODUCTS

Japan has proposed that only 1 China list item in this group be decontrolled. The item C-820, "Tires not elsewhere specified (except those for scooters and pedal cycles)," encompasses all motor vehicle tires except those covered by the II-I definition which control military truck tires of certain size and ply rating.^{1/} Tires of the same rim size as those on II-I, but in lesser ply rating or with non-military treads, could be exported to China if the Japanese proposal is accepted. All tires in rim sizes not covered by II-I also could then be exported. In substance, therefore, the Japanese proposal would effect the decontrol of most types and sizes of tires for motor vehicles, including some useful for military purposes in an emergency. There are actually very few types covered by the II-I definition.

As mentioned in the comment for group 3, China's production of rubber products is inadequate. In fact, it has been the target of considerable criticism and even ridicule. With a few exceptions tires are produced by handicraft methods at small plants. The quality is poor. Under China's plans of development, the domestic output of rubber products is to be expanded, as indicated in the following table although this expansion can only take place if additional machinery is obtained from abroad.

1/ II-1820 - Pneumatic tire casings (~~excluding~~ tractor and farm implement types), as follows:

- (a) of a kind specially constructed to be bullet proof or to run when deflated.
- (b) in the following sizes and ply ratings:
 - (1) 8 ply rating and over in the size 9.00 x 16
 - (2) 10 ply rating and over in the size 34 x 7;
 - (3) 12 ply rating and over in the sizes 14.00 x 20 and 12.00 x 20;
- (c) with off-the-road treads in the following sizes and ply ratings:
 - (1) 6 ply rating and over in the sizes 7.00 x 16, 6.50 x 20 and 6.50 x 19;
 - (2) 8 ply rating and over in the sizes 9.00 x 20, 7.50 x 20 and 7.00 x 20.

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TABLE 10

RECENT AND PROJECTED PRODUCTION OF SELECTED RUBBER MANUFACTURES
IN COMMUNIST CHINA,
FOR SELECTED YEARS, 1952 - 1960

<u>Item</u>	<u>1952</u>	<u>1955</u>	<u>1957</u>	<u>1960</u>
Motor Vehicle Tires (in thousands of units)	—	600	700	1,000
Rubber footwear (millions of pairs)	55	65	75	90

Rubber products are not in ample supply in the rest of the Bloc which is unable to furnish such products to China except by seriously neglecting commitments in other Communist areas. There are unconfirmed reports that other Bloc countries have restricted exports of rubber and rubber products to China as a conservation measure.

There have been unrelenting attempts to procure from the free world tires of all types and sizes through clandestine channels; premium prices have often been paid.

It is believed that a substantial market for tires of all types will exist in China for many years to come. The motor vehicle park of the country is scheduled to increase considerably. The poor quality of Chinese roads will require for many years to come a greater than average replacement of tires. Even considerably increased indigenous production will continue to be outdistanced by demand for the next decade.

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GROUP 9

MISCELLANEOUS

Japan has proposed one item on the China Special List for decontrol in this group: ataca and sisal, fibers and cordage

Communist China's supply of technical fibers is not adequate. But since the rest of the Bloc also has a fiber shortage and imports henequin, hemp, sisal and other fibers at every opportunity, China cannot expect much assistance from this source. China will be a moderately good market for technical fibers for many years.

Since the other items in this group are highly dissimilar, no further discussion appears indicated here

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